Amendments to the Specification

Please amend the Specification by replacing the Summary of the Invention with the following amended text:

SUMMARY OF THE INVENTION

The present invention, accordingly, advantageously provides an assembly, and an associated method, by which to communicate in a multi-user radio communication system, such as a WLAN (Wireless Local Area Network) generally operable pursuant to the IEEE (Institute of Electrical and Electronic Engineers) 802.11 standard. Specifically, ~~Operation~~ operation of an embodiment of the present invention provides a manner by which to facilitate effectuation of power control of signals transmitted during operation of ~~a multi-user~~ the communication system. ~~, such as a WLAN (Wireless Local Area Network) operable generally pursuant to the IEEE (Institute of Electrical and Electronic Engineers) 802.11 standard specification.~~

~~Operation of an embodiment of the present invention provides a Transmission Power Control (TPC) scheme for a radio communication system, such as one operable generally pursuant to the IEEE 802.11 standard.~~ The transmission power control scheme of the present invention facilitates quality of communications of the communication system in which the scheme is implemented. The ~~TPC~~ transmission power control scheme is provided in a manner ~~by~~ defining new ~~message~~ messages but without requiring the use of new frames. Rather, the ~~TPC~~ transmission power control scheme is preferably provided merely by redefining fields of existing frames.

~~In one aspect of the present invention, transmission power control is effectuated in different manners depending upon whether communication signals are to be~~

~~communicated upon random access channels or upon allocated channels. That is to say, transmission power control is effectuated in a first manner when communication signals are to be communicated upon random access channels, and transmission power control is effectuated in a second manner when the communication signals are to be communicated upon channels allocated for such communication.~~

~~When the communication signals are to be communicated upon random access channels, all communication stations of the multi-user radio communication system are instructed to transmit communication signals of substantially similar power levels. As all of the communication stations contend for the random access channel, constant transmission power, i.e., corresponding power levels of communication signals transmitted by each of the communication stations, provides operational benefits in the communication system. Effectuating communications at constant transmission levels is assured, for instance, by instructing each of the communication stations to transmit communication signals upon random access channels at the same selected power levels. Constant transmission power levels at which the communication signals are communicated is assured thereby.~~

~~When communication signals are to be communicated upon channels specifically allocated for such communication, uplink communications by a communication station need only be detected by an intended receiving station. The transmission power of the communication signal is, therefore, reduced to a level to merely be high enough to ensure reliable communication. Possibility of interference caused by such communication signals in other ongoing communications is thereby reduced.~~

In ~~another~~ one aspect of the present invention, a transmit power indication signal is generated at the network infrastructure of the radio communication system in which an embodiment of the present invention is operable. The transmit power indication signal is broadcast to all mobile stations within the coverage area encompassed by the sending station forming a portion of the network infrastructure at which the signal is generated. Mobile stations are tunable to detect the transmit power indication signal and are thereby provided with an indication of the maximum power levels at which communication signals generated at the respective mobile stations are to be transmitted upon random access channels.

When communications are to be effectuated upon allocated channels to individual mobile stations, the transmit power indication signal is again broadcast to the mobile stations. Additionally, a power control correction information signal is also transmitted to individual ones of the mobile stations. The power levels indicated by the transmit power indication signal is offset, at the individual mobile ~~station~~ stations, by the value of the power control correction information signal. The resultant value is the transmit power at which the mobile station is to transmit communication signals upon the ~~allocated~~ channels allocated thereto. Thereby, the power level at which communication signals are transmitted by a mobile station ~~upon a channel allocated thereto~~ is alterable from a standard [[,]] transmit power level.

In one implementation, a transmit power control scheme is provided for a radio communication system generally operable pursuant to the IEEE 802.11 standard. In the IEEE 802.11 standard, communications between mobile stations and the network infrastructure of the WLAN are effectuated either by way of allocated channels or by way

of random access channels. Communications are divided into contention periods and contention free periods. During a contention period, random access is permitted of a mobile station to communicate with the network infrastructure. And, during a contention free period, channels are allocated for communications between a mobile station and the network infrastructure. Beacon periods are defined during both the contention and contention free period. Access points forming portions of the network infrastructure broadcast transmit power indication signals during the beacon periods to all of the mobile stations operable in the WLAN and within the coverage area of the respective access points.

Mobile stations detect the transmit power indication signal and, when operating in the contention period, generate communication signals of values responsive to values of the transmit power indication signal. The access points are further selectably operable to generate power control correction information signals to individual ones of the mobile stations. Values of the power control correction information signals are utilized by the mobile stations, when communication signals are to be generated during the contention free period, to offset the power levels indicated by the transmit power indication signals. Thereby, the transmit power of the signals generated by a mobile station during the contention free period is tailored to the individual requirements of the mobile station-access point pair.

In these and other aspects, therefore, an assembly, and an associated method, is provided for a multi-user radio communication system. The muti-user radio communication system includes a network infrastructure with which ~~a first mobile station and at a second mobile station communicates~~ mobile stations communicate data. The

data forms portions of communication signals transmitted at selected power levels. Selection of the power levels at which to transmit the communication signals is facilitated. A signal generator is coupled to the network infrastructure. The signal generator generates a transmit power indication signal for transmission to at least ~~a selected one of the first mobile station and the at least second mobile station~~ one of the mobile stations. The transmit power indication signal is of a value representative of a maximum allowable power level ~~permitted of the selected power levels~~ at which to transmit the communication signals.

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A more complete appreciation of the present invention and the scope thereof can be obtained from the accompanying drawings which are briefly summarized below, the following detailed description of the presently-preferred embodiments of the invention, and the appended claims.